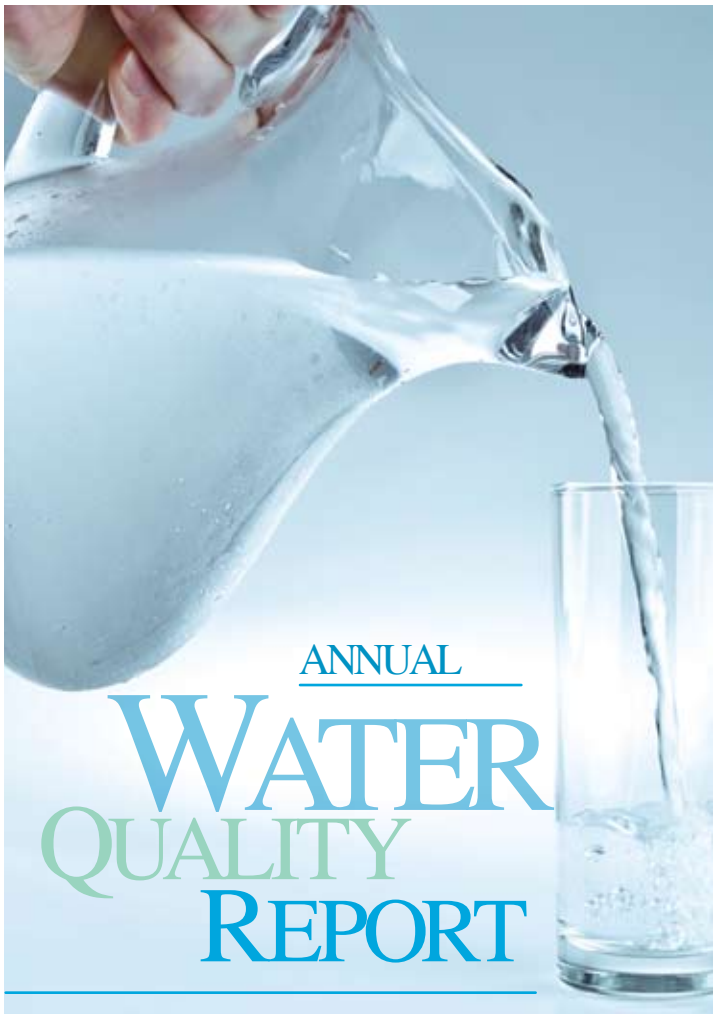

ANNUAL WATER QUALITY REPORT

Water testing performed in 2009

Presented By:

READING AREA WATER AUTHORITY

PWS ID#: 3060059

Maintaining High Standards

Once again we are proud to present our annual water quality report. This report covers all testing performed between January 1, 2009, and December 31, 2009. The events of the past few years have presented many of us with challenges we could not have imagined. Yet, in spite of this, we have maintained our high standards in an effort to continue delivering the best quality drinking water possible. There may be other hurdles in the future but know that we will always stand behind you and the drinking water we work diligently to provide.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions, we are always available to assist you.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or www.epa.gov/safewater/hotline.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. We meet the last Thursday of each month beginning at 4:00 p.m. at City Hall, Penn Room, 815 Washington Street, Reading, Pennsylvania.

What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef.

According to the U.S. EPA, the average American uses about 100 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet, twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to www.h2oconserve.org or visit www.waterfootprint.org to see how the water footprints of other nations compare.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Dean A. Miller, Reading Area Water Authority, at (610) 655-6252.

Where Does My Water Come From?

The Reading Area Water Authority customers are fortunate because they enjoy an abundant water supply from Lake Ontelaunee. Owned exclusively by the city, it is located on Route 73, six miles north of the city limits. The lake is a 1,083-acre, man-made lake with a 192-square-mile-watershed area. A minimum width of 500 feet of marginal sanitary strip surrounds the lake, with a total of 3,142.5 acres. This strip was acquired to minimize pollution entering the lake from the shorelines. Lake Ontelaunee was formed when a dam was constructed in 1926. The lake was raised to its present height in 1935. It has a capacity of 3.88 billion gallons. The raw water from the lake is delivered, by gravity, through a conduit to the Maiden Creek Filter Plant. The filter plant also has the capacity of drawing water from the Maiden Creek. This creek passes by the filter plant about two miles downstream of the dam. The Maiden Creek Filter Plant was constructed in 1934. Currently, our treatment facilities provide roughly 5.1 billion gallons of clean drinking water every year.

"WHEN THE WELL'S DRY, WE KNOW THE WORTH OF WATER." – *Benjamin Franklin*

Source Water Assessment

Four watershed studies indicate the following key concerns:

1. Bacterial contamination of water sources by animal and human fecal material.

2. Sediment delivery to the reservoir, which has reduced the capacity of the lake by roughly 10% of its volume.

3. Algae growth fueled by phosphorus transported to the lake via sedimentation.

Although the Reading Area Water Authority is concerned with protecting its sources of water, current treatment processes are capable of transforming raw water from the lake into finished water that meets all federal and state drinking water standards. A watershed committee has been formed to address the above concerns. To view a copy of the source water assessment, contact Dean A. Miller, Reading Area Water Authority, at (610) 655-6252.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

How Is My Water Treated and Purified?

The treatment method adopted by the plant is called conventional, which is the most efficient and commonly used method. In this method, a chemical coagulant, e.g., aluminum sulfate or ferric chloride, is added to the water to convert the undesirable materials to solid particles so they can be separated from the water by gravity. The finer remaining particles, which are slow to settle out, are then removed by filtration.

Raw water flows to the treatment plant where it passes through a bar screen to remove any plant debris and other large objects. Then optimum doses of the following chemicals are added to the water in the following order:

1. Chlorine: to eliminate bacterial and algae growth throughout the treatment plant.
2. Aluminum sulfate or alum: to coagulate undesirable materials.
3. Potassium permanganate: to aid in the removal of manganese and reduce undesirable tastes and odors of the water.
4. Powder activated carbon or charcoal: to eliminate undesirable tastes and odors.

After these chemicals are mixed with the water, it flows through a set of flocculation channels that force the large particles to settle to the bottom. The water then flows slowly into three large sedimentation basins and is allowed to stay for six to ten hours at a state of quiescence to settle the solid particles. The remaining microscopic floc particles are then removed by eight large filters. They are capable of removing materials as low as molecular in size. The filters are huge concrete boxes 12 feet deep containing, from the top to the bottom, 37 inches of large-to-fine gravel, fine garnet sand, silica sand, and fine anthracite coal.

The filtered water is then treated with the following chemicals as the final treatment step:

1. Caustic soda: to adjust pH and alkalinity of water to a healthy level and also reduce potential corrosivity of water on the distribution pipes.
2. Sodium fluorosilicate: to provide fluoride concentrations in the distribution system.
3. A mixture of orthophosphates: to reduce corrosion in the water pipes.
4. Chlorine: to maintain a residual disinfectant in the distribution system.

The treated water then flows into a water storage tank before being pumped to your residence.

Unregulated Contaminant Monitoring Regulation - Cycle 2 (UCMR2)

The purpose of UCMR2 is to "collect occurrence data for contaminants suspected to be present in drinking water, but do not have health-based standards set under the Safe Water Drinking Act." Quarterly monitoring of finished water, performed in March, June, September, and December of 2008, showed the presence of a nitrosamine, N-nitrosodimethylamine (NDMA).

Lead and Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Reading Area Water Authority is responsible for providing high quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Fixtures with Green Stains

A green or blue-green stain on kitchen or bathroom fixtures is caused by tiny amounts of copper that dissolve in your home's copper plumbing system when the water sits unused overnight. Copper staining may be the result of a leaky faucet or a faulty toilet flush valve, so be sure your plumbing is in good working order.

Copper stains may also be caused by overly hot tap water. Generally speaking, you should maintain your water temperature at a maximum of 120 degrees Fahrenheit. You should consult the owner's manual for your heater or check with your plumber to determine your current heat setting. Lowering your water temperature will reduce the staining problem and save you money on your energy bill.

Also keep in mind that a tap that is used often throughout the day usually will not produce copper stains, so if you flush the tap for a minute or so before using the water for cooking or drinking, copper levels will be reduced.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water.

The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine Disinfectant Residual of the Distribution System (ppm)	2009	[4]	[4]	1.86[1]	1.20–1.86	No	Water additive used to control microbes
Chlorine Disinfectant Residual of the Entry Point (ppm)	2009	[4]	[4]	1.49[2]	1.49–3.50	No	Water additive used to control microbes
Fluoride (ppm)	2009	2	2	1.30	0.41–1.30	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2009	60	NA	5[3]	2–5[4]	No	By-product of drinking water disinfection
Nitrate (ppm)	2009	10	10	3.95	2.40–3.95	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	6[3]	5–7[4]	No	By-product of drinking water chlorination
Total Organic Carbon[5] (ppm)	2009	TT	NA	1.3	0.9–1.3	No	Naturally present in the environment
Microbiological							
Total Coliform Bacteria (% positive samples)	2009	5% positive monthly samples	0	1.49	NA	No	Naturally present in the environment
Turbidity							
Turbidity[6] (NTU)	2009	TT	NA	0.087	0.027–0.087	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting the standard)	2009	TT	NA	100.0	NA	No	Soil run off

Tap water samples were collected for lead and copper analyses from sample sites throughout the community[7]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2009	1.3	1.3	0.186	0/35	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2009	15	0	1	0/35	No	Corrosion of household plumbing systems; Erosion of natural deposits

OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
N-nitrosodimethylamine of the Distribution System (ppb)	2008	0.0083	0.0039–0.0083	By-product of drinking water chlorination
N-nitrosodimethylamine of the Entry Point (ppb)	2008	0.0087	0.0022–0.0087	By-product of drinking water chlorination

[1] Highest Average Monthly Residual Value.
[2] Lowest Residual Value Detected at the Entry Point.
[3] Highest Running Annual Average.
[4] Based on a Quarterly Average.
[5] Percent removal range required for TOC is 0 - 35 percent. The percent removal achieved by Reading Area Water Authority in 2009 was 23 - 73 percent.
[6] Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
[7] Performed in July 2009.

Definitions

AL (Action Level):
The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal):
The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level):
The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal):
The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

NTU (Nephelometric Turbidity Units):
Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion):
One part substance per billion parts water (or micrograms per liter).

ppm (parts per million):
One part substance per million parts water (or milligrams per liter).

TT (Treatment Technique):
A required process intended to reduce the level of a contaminant in drinking water.